We claim:

1. A method for anisotropic processing of earth elastic parameter data and application of the processed data, comprising the steps of:

obtaining earth elastic parameter data of an object of interest;

obtaining earth anisotropy parameter data of the object of interest;

transforming the earth elastic parameter data based on input earth anisotropy parameter data to obtain anisotropic elastic parameter data; and

applying the anisotropic elastic parameter data in at least one method selected from the group consisting of i) an isotropic seismic modeling method, ii) an isotropic seismic analysis and interpretation method, iii) an isotropic seismic wavelet estimation method, iv) an isotropic seismic inversion method, and v) an isotropic method for analysis and interpretation of inversion results to produce processed anisotropic elastic parameter data.

2. The method according to claim 1, comprising the step of substituting the anisotropic elastic parameter data for isotropic elastic parameter data in said isotropic seismic modeling method to produce anisotropic seismic data.

3. The method according to claim 2, further comprising the step of using the produced anisotropic seismic data in an isotropic seismic analysis and interpretation method for analysis and interpretation of anisotropic seismic data.

4. The method according to claim 1, further comprising the step of substituting the anisotropic elastic parameter data for isotropic elastic parameter data in said isotropic seismic analysis and interpretation method for analysis and interpretation of anisotropic seismic data.

5. The method according to claim 1, further comprising the step of substituting the anisotropic elastic parameter data for isotropic elastic parameter data in said isotropic seismic wavelet estimation method for wavelet estimation or to improve an estimate of a wavelet for analysis of anisotropic seismic data.

6. The method according to claim 1, further comprising the step of substituting anisotropic elastic parameter data for isotropic elastic parameter data in said

isotropic seismic inversion method to generate estimates of the anisotropic elastic parameter data from anisotropic seismic data.

7. The method according to claim 1, further comprising the step of substituting the anisotropic elastic parameter data for isotropic elastic parameter data in said isotropic method for analysis and interpretation of inversion results.

8. The method according to claim 1, wherein the object of interest is selected from the group consisting of bore hole data, 1-D earth models, 2-D earth models, and 3-D earth models.

9. The method according to claim 1, wherein the step of transforming further comprises applying appropriate transform functions that convert the earth elastic parameter data and earth anisotropy parameter data to the anisotropic elastic parameter data.

10 The method according to claim 9, wherein the transform functions operate on a point-by-point basis.

11. The method according to claim 9, wherein the transform functions are $E' = \varepsilon_r^x \delta_r^y \gamma_r^z E$, wherein ε_r, δ_r and γ_r are anisotropy relative contrast parameters, E' is an anisotropic elastic parameter, E is the corresponding elastic parameter and x, y, z are constants.

12. The method according to claim 9, wherein the transform functions are derived analytically.

13. The method according to claim 9, wherein transform parameters of the transform functions incorporate spatially varying trends.

14. The method according to claim 9, wherein transform parameters of the transform functions are derived iteratively.

15. The method according to claim 1, wherein the step of transforming elastic parameter data to anisotropic elastic parameter data is obtained by integration of anisotropic elastic parameter contrasts.

16. The method according to claim 15, wherein a low frequency component of the anisotropic elastic parameter data obtained by integration is replaced by a low frequency component from corresponding anisotropic elastic parameter data obtained with transform functions that operate on a point-by-point basis.

17. The method according to claim 1, wherein the anisotropy parameter data are transformed to anisotropy relative contrast parameters such that relative contrasts of the transformed anisotropy parameters approximate the contrasts in the anisotropy parameter data.

18. The method according to claim 17, wherein the transformed anisotropy parameters are normalized to achieve that when the anisotropy is zero the anisotropic elastic parameters equal the elastic parameters from which they are generated.

19. A method for approximating anisotropic seismic modeling by applying isotropic seismic modeling, comprising steps of:

obtaining earth elastic parameter data of an object of interest;

obtaining earth anisotropy parameter data of the object of interest;

transforming the earth elastic parameter data to obtain anisotropic elastic parameter data based on the earth anisotropy parameter data; and

applying isotropic seismic modeling on the transformed anisotropic elastic parameter data to produce anisotropic seismic data, the produced anisotropic seismic data being an approximation of seismic data obtained by anisotropic seismic molding.

20. The method according to claim 19, further comprising the step of substituting the anisotropic elastic parameter data for isotropic elastic parameter data in isotropic seismic modeling to produce the anisotropic seismic data.

21. The method according to claim 20, further comprising the step of using the produced anisotropic seismic data in an isotropic analysis and interpretation method for analysis and interpretation of the anisotropic seismic data.

22. The method according to claim 19, wherein the object of interest is selected from the group consisting of bore hole data, 1-D earth models, 2-D earth models, and 3-D earth models.

23. The method according to claim 19, wherein the step of transforming further comprises applying appropriate transform functions that convert the earth elastic parameter data and earth anisotropy parameter data to the anisotropic elastic parameter data.

24. The method according to claim 23, wherein the transform functions operate on a point-by-point basis.

25. The method according to claim 23, wherein the transform functions are $E' = \varepsilon_r^x \delta_r^y \gamma_r^z E$, wherein ε_r, δ_r and γ_r are anisotropy relative contrast parameters, E' is an anisotropic elastic parameter, E is the corresponding elastic parameter and x, y, z are constants.

26. The method according to claim 23, wherein the transform functions are derived analytically.

27. The method according to claim 23, wherein transform parameters of the transform functions incorporate spatially varying trends.

28. The method according to claim 23, wherein transform parameters of the transform functions are derived iteratively.

29. The method according to claim 19, wherein the step of transforming elastic parameter data to anisotropic elastic parameter data is obtained by integration of anisotropic elastic parameter contrasts.

30. The method according to claim 29, wherein a low frequency component of the anisotropic elastic parameter data obtained by integration is replaced by a low frequency component from corresponding anisotropic elastic parameter data obtained with transform functions that operate on a point-by-point basis.

31. The method according to claim 19, wherein the anisotropy parameter data are transformed to anisotropy relative contrast parameters such that relative contrasts of the transformed anisotropy parameters approximate the contrasts in the anisotropy parameter data.

32. The method according to claim 31, wherein the transformed anisotropy parameters are normalized to achieve that when the anisotropy is zero the anisotropic elastic parameters equal the elastic parameters from which they are generated.

33. An iterative method for deriving transform functions to generate anisotropic elastic parameter data, comprising the steps of:

(a) obtaining earth elastic parameter data of an object of interest;

(b) obtaining earth anisotropy parameter data of the object of interest;

(c) generating synthetic anisotropic seismic amplitude reference data using an anisotropic forward modeling method, wherein the modeling method is selected by criteria including type(s) of anisotropy, wave type(s), model complexity and/or modeling accuracy;

(d) generating anisotropic elastic parameter data by applying transforms using an initial set of transform parameters;

(e) applying isotropic forward modeling with the anisotropic elastic parameter data using an isotropic equivalent of the anisotropic forward modeling method used in step (c);

(f) comparing the anisotropic seismic amplitude data synthesized with the isotropic modeling of step (e) with the reference anisotropic seismic amplitude data of step (c);

(g) repeating steps (e) and (f) with at least one modified transform parameter until a satisfactory match is obtained; and

(h) producing the transform functions from the modified transform parameter of step (g).

34. The method according to claim 33, wherein in step (e) equivalence is obtained by setting the anisotropy parameters in the anisotropic forward modeling method to a constant value.

35. The method according to claim 33, wherein in step (e) equivalence is obtained by setting the anisotropy parameters in the anisotropic forward modeling method to zero.

36. The method according to claim 33, wherein the anisotropy parameter data are transformed to anisotropy relative contrast parameters such that relative contrasts of the transformed anisotropy parameters approximate the contrasts in the anisotropy parameter data.

37. The method according to claim 36, wherein the transformed anisotropy parameters are normalized to achieve that when the anisotropy is zero the anisotropic elastic parameters equal the elastic parameters from which they are generated.

38. A device for anisotropic processing of earth elastic parameter data and application of processed data, comprising:

a first input means for inputting earth elastic parameter data of an object of interest;

a second input means for inputting earth anisotropy parameter data of the object of interest;

a transform means for transforming, based on the input earth anisotropy parameter data, the input earth elastic parameter data to obtain anisotropic elastic parameter data;

a processor for applying the anisotropic elastic parameter data in at least one method selected from the group consisting of i) an isotropic seismic modeling method, ii) an isotropic seismic analysis and interpretation method, iii) an isotropic seismic wavelet estimation method, iv) an isotropic seismic inversion method and v) an isotropic method for the analysis and interpretation of inversion results; and

an output means for outputting the processed anisotropic elastic parameter data.

39. A device for approximating anisotropic seismic modeling by applying isotropic seismic modeling, comprising:

a first input means for inputting earth elastic parameter data of an object of interest;

a second input means for inputting earth anisotropy parameter data of the object of interest;

a transform means for transforming, based on the input earth anisotropy parameter data, the input earth elastic parameter data to obtain anisotropic elastic parameter data;

a processor for applying the isotropic seismic modeling on the transformed anisotropic elastic parameter data, the resulting modeled anistropic seismic data being an approximation of the data obtained by a corresponding anisotropic seismic modeling; and

an output means for outputting the processed anisotropic seismic data.

40. A system including at least one data processor, a storage unit on which at least elastic seismic parameter data and anisotropy parameter data can be stored and a computer program, the computer program comprising instructions for causing the data processor to execute the method steps of claim 1.

41. A system including at least one data processor, a storage unit on which at least elastic seismic parameter data and anisotropy parameter data can be stored and a computer program, the computer program comprising instructions for causing the data processor to execute the method steps of claim 19.

42. A system including at least one data processor, a storage unit on which at least elastic seismic parameter data and anisotropy parameter data can be stored and a computer program, the computer program comprising instructions for causing the data processor to execute the method steps of claim 33.

43. A data carrier on which a computer program is stored, wherein the computer program when run on a computer is able to execute the method steps according to claim 1.

44. A data carrier on which a computer program is stored, wherein the computer program when run on a computer is able to execute the method steps according to claim 19.

45. A data carrier on which a computer program is stored, wherein the computer program when run on a computer is able to execute the method steps according to claim 33.